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implemented using a standard 50:50 coupler such as, for example, a Y-coupler, a beam-splitter prism, or any other optical power splitter device. Optical coupler 25 can also be a 50:50 coupler. In other embodiments, the splitters can have arbitrary power splitting ratios. Phase shifter 26 can be any suitable phase shifting device such as, for example, electro-optic, thermo-optic and stress-optic phase shifters. In this embodiment, phase shifter 26 varies the phase of an optical signal by varying the refractive index of the medium in which the optical signal is propagating. Other embodiments may use phase shifters that create phase differences using different approaches or mechanisms.

Please replace the paragraph beginning at page 8, line 17, with the following amended paragraph:

A2

However, partially reflective facet 22 also reflects a portion of the recombined optical signal to propagate back to partially reflective facet 21 via optical coupler 25, arms 28A and 28B, and optical coupler 24. More particularly, (a) optical coupler 25 splits the reflected signal to propagate in arms 28A and 28B; (b) phase shifter 26 introduces another relative phase shift between the component signals outputted by signal combiner 25; (c) optical coupler 24 combines these component signals; and (d) partially reflective facet 21 reflects a portion of the recombined output signal of optical coupler 24. This reflected portion in effect, is then operated on as described in block 31 and so on. Thus, in effect, portions of input optical signal 16 are confined in optical cavity 12 (defined by partially reflective facets 21 and 25) for multiple passes through MZI